

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Application No.: 10/530,014  
Title: Multiple Plate Combustor  
Filed: September 6, 2006  
Inventor: Mehrzad Movassaghi  
Assignee: Fama Holdings Ltd.  
Priority: October 1, 2002  
Art Unit: 3700

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Hon. Commissioner of Patents and Trademarks  
P.O. Box 1450  
Alexandria, VA 22313-1450

**SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT**

Dear Sir:

In compliance with the Applicant's duty of disclosure set forth in 37 C.F.R. §1.56 and pursuant to the provisions of 37 C.F.R. §1.97, et seq., Applicant hereby submits this Supplemental Information Disclosure Statement for the purpose of bringing to the attention of the Examiner the information contained in the following references for consideration during the examination of the above-referenced patent application:

**U.S. Patent Documents**

<u>Patent No.</u>	<u>Issued</u>	<u>Inventor(s)</u>
6,464,490 B1	Oct. 15, 2002	Chato

**Foreign Patents**

<u>Patent/Publication No.</u>	<u>Issued</u>	<u>Inventor(s)</u>
WO 97/20171 A1	Mar. 03, 1996	Movassaghi
WO 00/12934 A1	Mar. 09, 2000	Chato
EP 0950853 A2	Oct. 20, 1999	Wood

## Comments

Chato (WP 00/12934) and Chato (US 6,464,490), collectively "Chato" herein, disclose a pulse combustor in which a plurality of stackable annular plate units form a central "round space" Col 3:53 of US 6,464,490. Chato does not disclose cooling mechanisms, coolants, or coolant passageways. Chato is, in fact, silent on the issue of how heat is extracted from the annular units.

Wood (EP 0950853) is in a distinct field – burners employing fan forced fuel/air mixtures. In Wood's device a fuel/air mixture is blown through a plurality of stacked annular discs (Col 4:47; Fig. 1) the outer ends of which form flame ports. Col 5:15. Consequently, Wood is the inverse of the present invention, where combustion takes place in a central combustion chamber and exhaust gases and heat pass between the plates. Like Chato, Wood does not disclose the use of coolant or coolant passageways associated with the stacked discs. In fact, the Wood device has no need to cool the stacked discs because the heat is produced outside the stack assembly. Col 5:15.

Wood does disclose incorporating a cone in combination with perforations in a cylinder that forms a distributor, the purpose of the cone being to create a pressure gradient so as to equalize the amount of air/fuel mixture expelled between the discs and out of the flame ports. Col 5:55; Fig 4. Wood also discloses the unequal spacing of the discs to equalize the flow of fuel/air mixture. Col 5:47; Fig 5.

Movassaghi (WO 97/20171) discloses a pulse combustor employing coolant passageways in two spaced apart walls that form a pulse combustor. Pg 4:32; Fig 2. The coolant passageways are provided by tubing coiled to form the two spaced apart walls. Fig 1.

In the present application Movassaghi improves upon his prior art pulse combustor by providing for plates between the two spaced apart walls, the plates being referred to as "intermediate plates." The intermediate plates include coolant passages ways so that a coolant can be used to optimally extract heat from the plates. In the best known embodiment, coiled tubing is employed to form these intermediate plates.

The present application thus represents a significant improvement over the existing art in that by employing a plurality of intermediate plates having cooling passageways, the volume of the combustion chamber is increased, greater amounts of

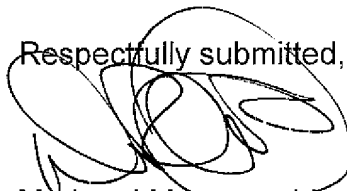
heat can be produced, and more of that heat can be extracted with the coolant as a result of the coolant passageways in the intermediate plates.

The present application also discloses the use of a cone and judicious spacing of the intermediate plates in order to equalize gas flow in a pulse combustor. As noted above, Wood's use of such techniques is in a system in which the gas is under positive pressure provided by a fan. Fig 1. The pressure in the system is thus constant. The present application uses a similar approach in a pulse combustor where the internal pressures fluctuate between positive and negative throughout the pulse cycle. Thus, the recognition that the forces produced by the pulsating pressures of a pulse combustor are amenable to control by means of a cone and/or unequal plate spacing represents a very significant inventive step in the field of pulse combustors.

It is respectfully submitted that the Applicant's invention defines patentable subject matter over the teachings of the above references, alone or in any combination thereof. Accordingly, favorable action on this application is respectfully requested. A completed form PTO/SB/08A and PTO/SB/08B, delineating the above references, is enclosed, as well as a copy of each of the foreign references.

This Disclosure Statement, filed in accordance with 37 C.F.R. §1.97, should not be construed as a representation that a search has been made, or that no other material information, as defined in 37 C.F.R. §1.56(a), exists.

Respectfully submitted,



by: Merhzaad Movassaghi  
Applicant

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